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Wetlands and Paper Mill Run Improvements

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Title: **Wetlands and Paper Mill Run Improvements**

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Abstract:

The Morris Arboretum recently received an endowment from the estate of Ann Highland. This endowment was given in order to improve the Arboretum's wetlands and natural areas and to ensure their preservation as important parts of the Arboretum's collection. This project consists of new planting designs on three different sites in the natural areas, and a management plan for each site with "before" and "after" planting instructions.

This project will be implemented in three phases.

Phase One: Create the Ann Highland Memorial Grove (Paper Mill Run North), and improve the back of the wetlands.

Phase Two: Enhance current plantings along Stenton Avenue (PMR North) in order to increase visibility of the Morris Arboretum to vehicle traffic.

Phase Three: Add the final grouping of plants to Stenton Avenue (PMR North) planting site.

The overall design goal is to enhance the entrance landscape. After the completion of the new entrance, focus has shifted to the landscape surrounding the main gate, and how it can better showcase the Arboretum to vehicle traffic on Northwestern Avenue. The designs are intended to add more spring and fall color to the main entrance landscape along the Paper Mill Run and into the wetlands. The plants chosen for this planting are native to southeastern Pennsylvania and should be well-suited to the planting sites. The plantings are intended to be seen from a vehicle traveling along the Arboretum's entrance road, but are also arranged so that a foot traveler along the Paper Mill Run and into the wetlands will benefit from the enhanced landscape.

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INTRODUCTION

The Morris Arboretum recently received an endowment from the estate of Ann Highland. This endowment was given in order to improve the Arboretum wetlands and natural areas and to ensure their preservation as an important part of the Arboretum's collection. This project consists of three new design installations in the natural areas and wetlands, and a management plan for each site with "before" and "after" planting instructions. This project will be implemented in three phases. The overall design goal is to enhance the entrance landscape.

The designs are intended to add more spring and fall color to the main entrance landscape along the Paper Mill Run and into the wetlands. The plants chosen for this planting are native to southeastern Pennsylvania and should be well-suited to the planting sites. These plantings are intended to be seen from a vehicle traveling along the Arboretum's entrance road, but are arranged so that a foot traveler along the Paper Mill Run and into the wetlands will also benefit from the added plants.

PROJECT GOALS AND OBJECTIVES

The natural areas and wetlands are a vital part of the Morris Arboretum. They provide a showcase for native plants and a valuable teaching tool for water conservation and run-off management. They are also home to a wide variety of wildlife and are a birder's paradise. The natural areas are beautiful during any season with movement and life present at any time of the year. The spring blossoms and fall color in the natural areas are some of its greatest assets and are the showiest seasons. As a result, my designs and plant selections are based on improving the seasonal colors.

PLANT SELECTION

The first part of the improvement plan was to evaluate the current plantings in the natural areas. I evaluated them for fall color, plant vigor, and overall success in the stressful environment of the natural areas. I surveyed during several different days throughout the fall in order to catch the early as well as the late color changes in the landscape.

My first day of fall color observation was September 30, 2007. In the days leading up to the 30th the weather had been fairly hot and none of the trees displayed any noteworthy fall color.

Due to the long summer, fall began later than usual. The first noticeable colors were recorded on October 22nd. The best of the early fall colors were: *Diospyros virginiana, Viburnum lentago, Juglans nigra, Viburnum dentatum, Leucothoe racemosa, Hammamelis virginiana, and Cornus florida*. All of these plants were thriving in the natural areas, and had attractive fall color.

My next days of observation were in November. On the 4th many more trees and shrubs were starting to turn color, and my list of promising species grew longer. *Cornus florida, Acer rubrum* 'Red Sunset', *Viburnum dentatum, Viburnum lentago, and Nyssa sylvatica* were among

the best. By November 14th most of the trees had lost their leaves, but the three specimens of *Acer rubrum* 'October Glory' were completely red, and were the last of the colors that fall.

In addition to evaluating plant health and fall color, I needed to identify areas that would benefit from the addition of new plants and be visible to the public. While evaluating for fall color, I was becoming very familiar with the layout of the natural areas and wetlands and was able to make a list of possible planting sites.

SITE SELECTION

I identified four potential sites that had space available for planting and worked with Tony Aiello, the Director of Horticulture, to determine which areas were priorities for the Arboretum to develop. The top sites were the back of the wetlands, along Stenton Avenue (Paper Mill Run North), across the Paper Mill Run from the pump house (PMR North), and at the bridge on Northwestern Ave. in the meadow along the Wissahickon by the Taxodium grove (PMR West). Each of these sites when planted will make a significant impact on the landscape and will be visible to Arboretum visitors and the general public as well.

It was determined that the PMR N area opposite the pumphouse would be the location for the Ann Highland Memorial Grove because of the space available for planting, the quality of the growing conditions, and its prominence in the landscape. The two other planting sites would be PMR N along Stenton Avenue, and at the back of the wetlands. These plantings would be developed, but not as extensively as the new Ann Highland Grove.

The designs for all three of these areas focus on creating a big impact for a visitor arriving to the Arboretum in a car. Although this is the main goal, the plantings are laid out so that a foot traveler will also be able to see spring and fall color, four seasons of interest, and plants were selected for their wildlife value.

PHASES I, II, AND III

Phase I was installed in the spring of 2008. This included the back of the wetlands, the Ann Highland Grove (PMR N), and part of the Stenton Avenue (PMR N) planting. Sixteen trees were planted, and 33 shrubs and smaller trees were installed in the wetlands and along the Paper Mill Run.

Phase II is scheduled to be installed in the fall of 2008. The remainder of the Stenton Avenue (PMR N) site is to be planted, and the *Ilex verticillata* is to be installed in every area specified in the landscape plans.

Phase III can be installed when budget needs are met. The Stenton Avenue (PMR N) plantings were designed to be planted with an understory of flowering trees. Once the bigger shade trees are established, the smaller trees should be installed.

SITE MAINTENANCE PLAN

In preparation for the new plantings, the invasive exotic species were removed from the areas and the nearby vegetation was cut back in order for the new plants to establish successfully. Over the next few years these plants should be protected from buck rubs by deer in the fall, rodent damage in the winter and the vegetation around them should be kept from competing with these young plants during the growing season.

CONCLUSION

The wetlands and natural areas are a great asset of the Arboretum. My designs are meant to draw attention to these less-traveled areas and will hopefully entice more visitors to wander along the Paper Mill Run and the wetlands. It is a spectacular example of native plants thriving in their natural environment and should be showcased like any other section at the Morris Arboretum.

ACKNOWLEDGEMENTS

Pam Morris, Tony Aiello, Elinor Goff, Dr. Lou Anella, Michelle Conners, Paul Meyer, Sarah V. Martin, Anne Brennan, Kate Deregibus, Herbert White, Katie Barritt, Carrie Borgenicht, and Clara Feldmanstern.

REFERENCES

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2. Rhoads, Ann, and Block, Timothy. The Plants of Pennsylvania, Second Edition. 2007. University of Pennsylvania Press, Philadelphia, Pennsylvania.

3 Gray, Jennifer; Native Plant List Suitable For the Wetland at the Morris Arboretum of the University of Pennsylvania. 2001. Morris Arboretum, Philadelphia, Pennsylvania.

Appendix A: **Natural Areas Plant List**

PHASE I

Quantity	Size	Species
		Ann Highland Grove (PMR N)
2	**2-2.5" BB**	***Acer rubrum* 'October Glory'**
5	**6-7' BB**	***Amelanchier laevis***
6	**3-4' BB**	***Aronia arbutifolia***
8	**3-4' BB**	***Aronia melanocarpa***
7	**3-4' BB**	***Clethra alnifolia* 'Alba'**
7	**3-4' BB**	***Clethra alnifolia* 'Rosea'**
6	**1-1.5" BB**	***Cornus florida* 'Cherokee Princess'**
7	**3-4' BB**	***Viburnum lentago***
		Stenton Avenue (PMR N)
5	**2-2.5" BB**	***Acer saccharum* 'Green Mountain'**
		Wetlands
1	**2-2.5" BB**	***Acer rubrum* 'Red Sunset'**
5	**1-1.5" BB**	***Acer rubrum*** ****Multi-Stemmed****
3	**1.5-2" BB**	***Nyssa sylvatica***

PHASE II

Stenton Avenue (PMR N)

3	**1.5-2" BB**	***Diospyros virginiana***
8	**1.5-2" BB**	***Nyssa sylvatica***
1	**7 Gallon**	***Liriodendron tulipifera***
7	**3-4' BB**	***Chionanthus virginiana***
7	**7-8' BB**	***Cercis canadensis* 'Alba'**
22	**3-4' BB**	***Ilex verticillata* 'Winter Gold'**

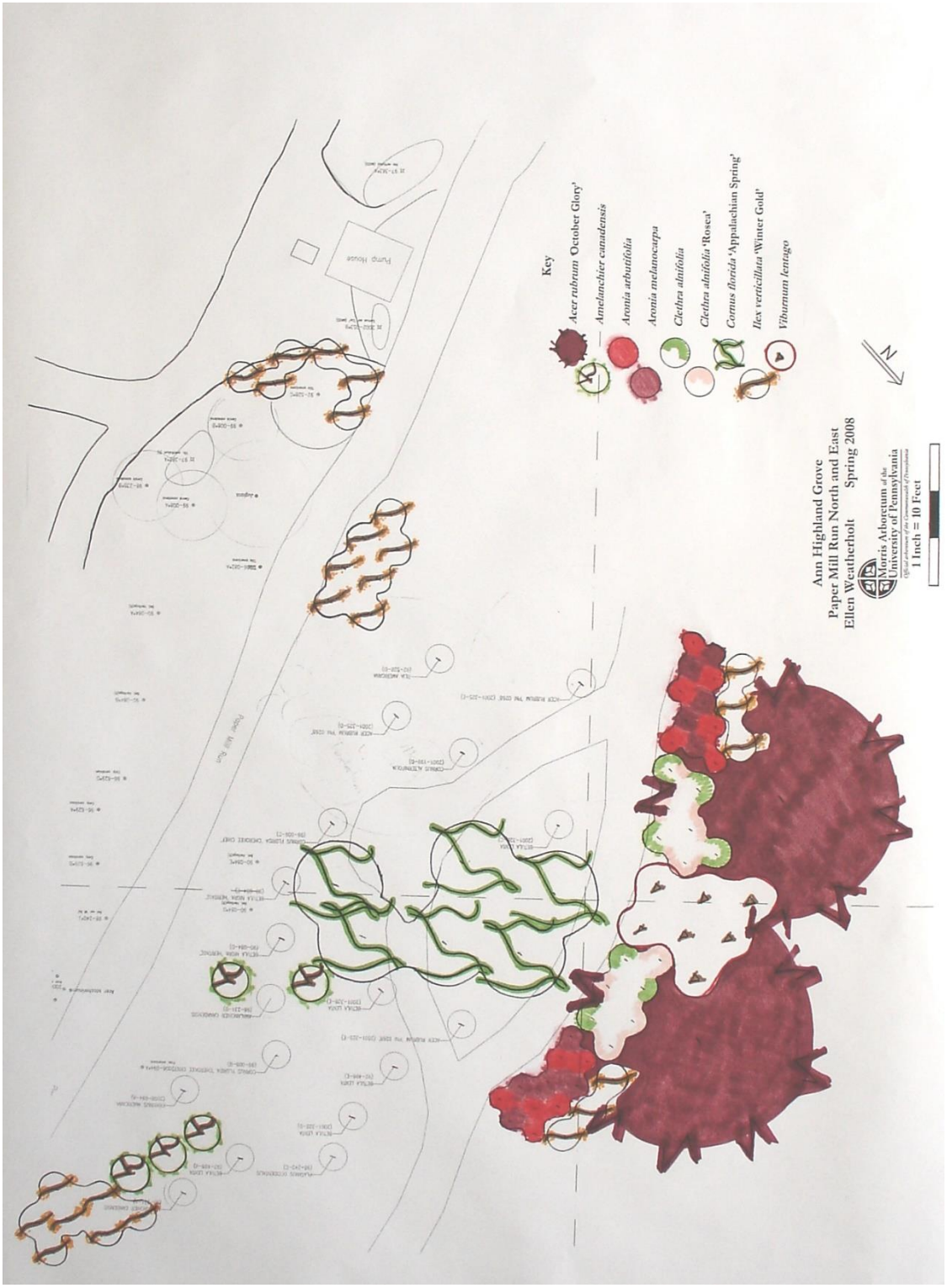
PHASE III

Stenton Avenue (PMR N)

11	**6-7' BB**	***Cercis canadensis* 'Oklahoma'** **or another bright magenta/red flowered *Cercis***
7	**7-8' BB**	***Cornus florida* 'Appalachian Spring'**

Appendix B **Landscape Plans**

Ann Highland Grove
PMR North



Stenton Avenue
PMR North